

**NON-FOCUSING OPTICS SPECTROPHOTOMETER,  
AND METHODS OF USE**

Abstract of the Disclosure

In one aspect, the present invention provides kinetic spectrophotometers that  
5 each comprise: (a) a light source; and (b) a compound parabolic concentrator  
disposed to receive light from the light source and configured to (1) intensify and  
diffuse the light received from the light source, and (2) direct the intensified and  
diffused light onto a sample. In other aspects, the present invention provides  
10 methods for measuring a photosynthetic parameter, the methods comprising the steps  
of: (a) illuminating a plant leaf until steady-state photosynthesis is achieved;  
(b) subjecting the illuminated plant leaf to a period of darkness; (c) using a kinetic  
spectrophotometer of the invention to collect spectral data from the plant leaf treated  
in accordance with steps (a) and (b); and (d) determining a value for a photosynthetic  
15 parameter from the spectral data.